Palm Beach County Health Department
Division of Environmental Health & Engineering

PBC HEA AIR 1999

Air Pollution Control Program

Air Pollution Control Program
1999 Annual Report

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FLORIDA DEPARTMENT OF HEALTH

Palm Beach County Health Department

Vision

Champions for the Healthiest Community in the Nation.

Mission

To Protect and Promote a Healthy Community by:

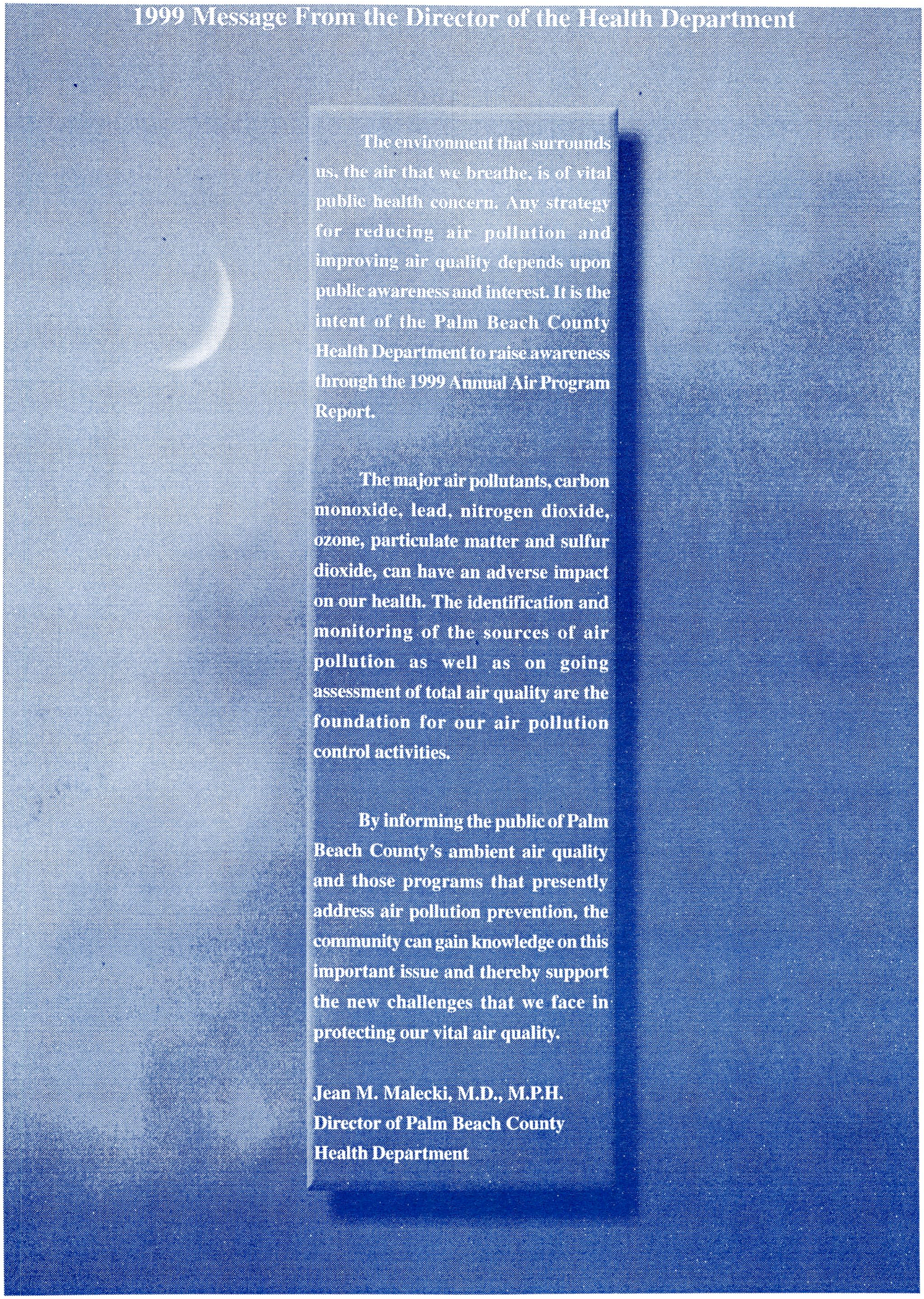
~ Assessing Public Health Issues ~

~ Developing Public Health Policy Initiatives ~

~ Assuring Access to Essential Health Services ~

~ Assuring a Healthy Environment ~

FLORIDA DEPARTMENT OF
HEALTH
Palm Beach County Health Department



1999 Message From the Director of the Health Department

The environment that surrounds us, the air that we breathe, is of vital public health concern. Any strategy for reducing air pollution and improving air quality depends upon public awareness and interest. It is the intent of the Palm Beach County Health Department to raise awareness through the 1999 Annual Air Program Report.

The major air pollutants, carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulfur dioxide, can have an adverse impact on our health. The identification and monitoring of the sources of air pollution as well as on going assessment of total air quality are the foundation for our air pollution control activities.

By informing the public of Palm Beach County's ambient air quality and those programs that presently address air pollution prevention, the community can gain knowledge on this important issue and thereby support the new challenges that we face in protecting our vital air quality.

Jean M. Malecki, M.D., M.P.H.
Director of Palm Beach County
Health Department

Message From The Director of Environmental Health & Engineering

We are pleased to present the 1999 Air Pollution Control Program Annual Report. This report is intended to provide an overview of current air quality in Palm Beach County, and to summarize the activities and accomplishments of the air program.

Presently, Palm Beach County is in compliance with all National Ambient Air Quality Standards (NAAQS). However, in 1997, the U.S Environmental Protection Agency made major revisions to the NAAQS for two pollutants. For one, the ozone standard was changed to a lower concentration, but now averaged over eight hours instead of one hour. Compliance is based on the fourth highest annual value averaged over a three-year period. Given current data, it appears that Palm Beach County will also be in compliance with the new ozone standard. The second change to the NAAQS was the adoption of daily and annual standards for fine particulate matter, which is defined as small particles with diameters of less than 2.5 micrometers (PM2.5). During 1998, the Health Department made plans, obtained the necessary PM2.5 air samplers and other sophisticated equipment, and began setting up the network for PM2.5 monitoring. The official monitoring commenced in January 1999, and compliance with this standard will also be based on three years of data.

During the year the Health Department continued its focus on Pollution Prevention (P2), which emphasizes the utilization of cost effective processes and alternative materials and methods to reduce the amount of pollution that is generated as opposed to dealing with it after it is formed. Working with the Pollution Prevention Coalition of Palm Beach, specialty workshops were arranged for the agriculture and medical industries. Another workshop was held for middle school teachers to assist them in educating youth on P2 concepts. The use of cleaner alternative fueled vehicles was promoted during special events such as National Public Health Week, Earth Day, and Pollution Prevention Week.

Our next major challenge will be dealing with hazardous air pollutants. These are chemicals that are known to be hazardous to public health, but have no air quality standards associated with them. The federal strategy is to reduce the emissions of these pollutants by utilizing maximum achievable control technology, and then assess the residual risk. The neighborhood drycleaner is an example of a business that is employing this technology. The Palm Beach Count Health Department intends in the near future to conduct air monitoring for hazardous air pollutants in order to assess the effectiveness of current control strategies.

Frank J. Gargiulo, P.E., R.S.
Director
Environmental Health & Engineering

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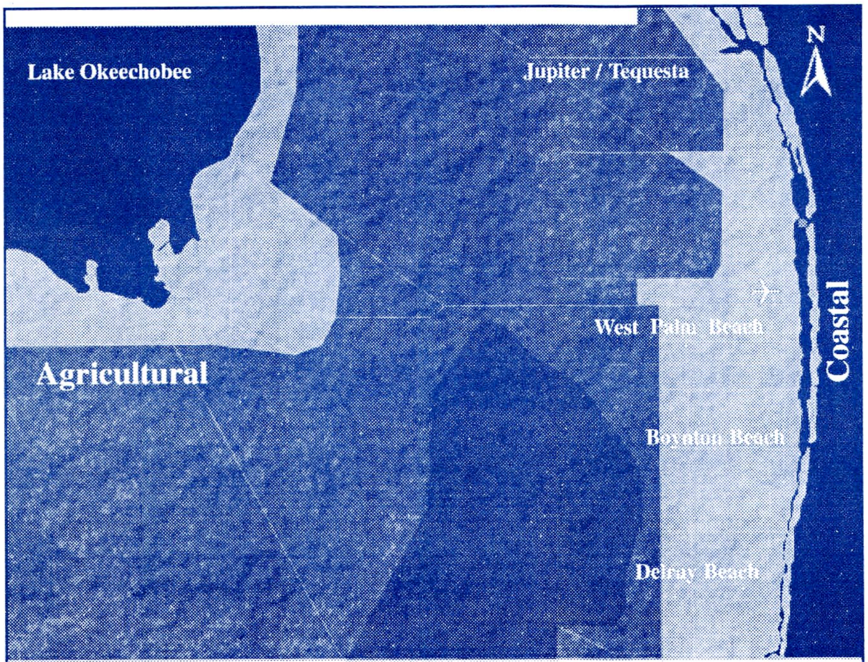
I. INTRODUCTION

Air is an essential natural resource, one that we cannot afford to take for granted. Many everyday activities contribute to the pollution of this vital resource. Clean air is important. A decline in overall air quality can damage health and property, affect business, recreation, and tourism. Since each of us contributes in some manner to air pollution, we must all take responsibility for seeking a solution.

To address this problem, the Palm Beach County Health Department has implemented an extensive air pollution control program. Working closely with other agencies and organizations, the Health Department is striving to protect and maintain the good air quality Palm Beach County residents now enjoy.

Characteristics of Palm Beach County

Palm Beach County is located along the southeast coast of Florida, and is part of what is generally called the "Florida Gold Coast." Containing about 2,000 square miles, Palm Beach County is geographically separated into two regions. One region is a highly urbanized coastal strip, stretching approximately forty-five miles north to south, from Tequesta to Boca Raton. The other region is agricultural, located in the western portion of Palm Beach County (the Glades Area).



Many of Palm Beach County's 38 municipalities are located along the densely populated coastal region.

The estimated population of Palm Beach County in 1999 was 1,042,196. About 97% of the population is located along the coast, reaching inland about 15 miles. Rapid development in recent years has resulted in significant growth of several municipalities within this coastal strip. Major cities with populations over 50,000 are West Palm Beach, Boca Raton, Delray Beach, and Boynton Beach.

The area around Lake Okeechobee contains almost all of the remaining 3% of the county's population. Municipalities in the Glades Area include Belle Glade, Pahokee, and South Bay. The economy of this area is agricultural, based primarily on sugar cane and winter vegetables.

Tourism/recreation/entertainment businesses continues to be the dominant industries in the urban area. Tourism has kept pace with an increasing population. Other major industries include, agribusiness, business/financial services, communication/information technology, medical/pharmaceutical products, aerospace/engineering.

The complexity of the problems of air pollution control are related to the widespread growth in Palm Beach County. Advances in environmental protection activities, which are being carried out by this program, have been utilized in order to keep abreast of air pollution problems. These activities are characteristic of urban areas across the nation.

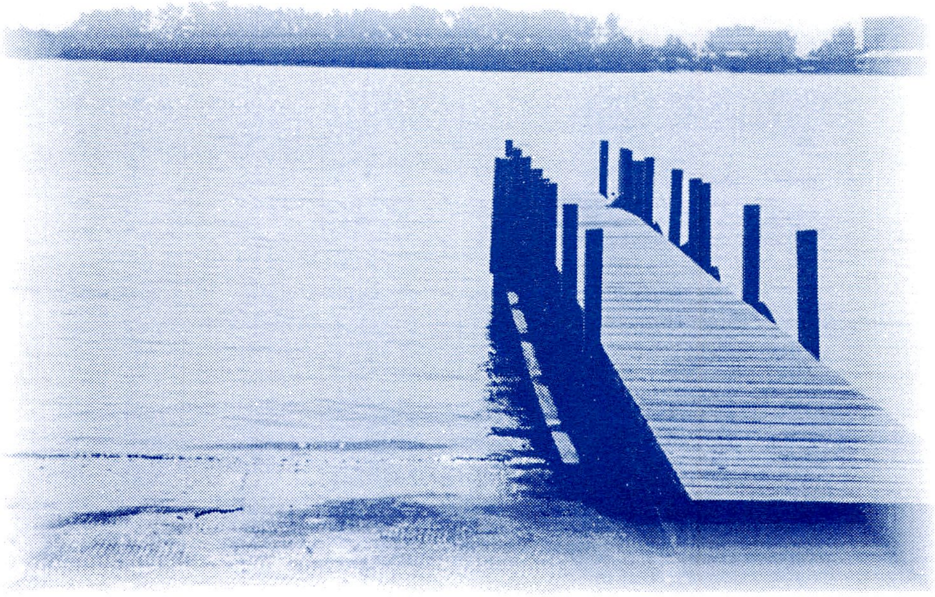
Organization and Goals

The air pollution control program is organized under the Palm Beach County Health Department's Division of Environmental Health and Engineering. Established in 1965, it is one of the oldest and most experienced programs in the State. Operating on behalf of Palm Beach County, the Health Department's program is recognized by the Florida Department of Environmental Protection as an approved local air program. The program is supported by license fees, a federal grant, and motor vehicle registration fees.

The goals and objectives of the Health Department's air program are to:

- **maintain National Ambient Air Quality Standards.**
- **protect public health, safety and welfare.**
- **promote air quality preservation and the conservation of our natural resources.**
- **seek opportunities for promoting voluntary Pollution Prevention (P2) programs.**

To accomplish these goals, the air pollution control program is organized into two general areas: air pollution control and air quality assessment. Given sufficient resources, adequate regulations, and most importantly, the support of the public, these goals and objectives can be achieved.



Preserving the County's Air Quality will allow residents and visitors to enjoy the highest "quality of life" as depicted by this scenic photo of the intracoastal waterway on a "crystal clear" day.

II. MAJOR AIR POLLUTANTS & HEALTH EFFECTS

A number of air pollutants can cause damage to our health. The Clean Air Act provides for the establishment of National Ambient Air Quality Standards (NAAQS) for a select list of air pollutants. These "criteria" air pollutants are the most prevalent and have the greatest overall adverse impacts on health. The standards are designed to protect public health with a margin of safety, and are based on the best available scientific evidence. Table 2.1 lists the current NAAQS for the six criteria air pollutants. Table 2.2 provides a desscription of each pollutant and associated health effects.

Table 2.1 Federal and State Ambient Air Quality Standards

POLLUTANT	UNITS	FEDERAL Primary	FEDERAL Secondary	STATE
1.Particulate Matter (PM)				
Inhalable PM 10				
Annual Arithmetic Mean	ug/m3	50	-	same
Maximum 24 Hour Value	ug/m3	150	-	same
Fine PM2.5				
Annual Arithmetic Mean	ug/m3	15	-	same
Maximum 24 Hour Value	ug/m3	65	-	same
2.Sulfur Dioxide				
Annual Arithmetic Mean	PPM	0.03	-	0.02
Maximum 24 Hour Value	PPM	0.14	-	0.10
Maximum 3 Hour Value	PPM	0.50	-	same
3.Carbon Monoxide				
Maximum 8 Hour Value	PPM	9	same	same
Maximum 1 Hour Value	PPM	35	same	same
4.Ozone				
Maximum 8 Hour Value	PPM	0.08	same	same
Maximum 1 Hour Value	PPM	0.120	same	same
5.Nitrogen Dioxide				
Annual Arithmetic Mean	PPM	0.05	same	same
6.Lead				
3 Month Average	ug/m3	1.5	same	same

Criteria Pollutants

Table 2.2

POLLUTANT	DESCRIPTION	EFFECTS	SOURCES
PARTICULATE MATTER PM 10 and PM 2.5	Particulate matter is liquid or solid particles suspended in the atmosphere. This includes soil, sand, soot and mold spores. PM2.5 is made up of smaller particles emitted primarily from combustion sources or formed from chemical reactions in the air.	Particulate matter can affect those who suffer from cardiopulmonary diseases such as asthma. Fine particles (PM2.5) are more of a health concern as they can penetrate deeply into the lungs. High levels of PM2.5 have been associated with increased illnesses and mortality.	Factories, power plants, motor vehicles, construction activity, open burning, wind blown dust.
OZONE (ground level)	Ozone (03) is produced by a photochemical reaction between oxygen (02), oxides of nitrogen (NO2) and volatile organic compounds (VOCs).	Ozone is an irritant to the mucous membranes of the respiratory system. Elevated levels can effect breathing. Individuals with pre-existing respiratory problems or engaged in outdoor activities are particularly at risk, especially children.	VOCs from motor vehicles and evaporative emissions from solvents used in paints, cleaners, printing and other processes. For N0x, see below for N02.
NITROGEN DIOXIDE	Nitrogen dioxide (NO2) is a reddish-brown gas that is considered toxic.	At elevated levels, it can cause damage to the respiratory system and aggravate respiratory infections.	The primary sources are coal and oil-fired electric utility boilers and transportation sources such as gasoline and diesel powered cars, trucks and buses.
LEAD	Toxic metal that can be absorbed into the body, accumulating in the blood, bones and soft tissue.	Central nervous system is highly susceptible. Also causes birth defects, high blood pressure, seizures and behavioral disorders.	Lead smelters and municipal waste combustors.
CARBON MONOXIDE	Carbon monoxide (CO) is a colorless, orderless and tasteless gas. However this gas is toxic.	Exposure to ambient levels exceeding the standards can effect the central nervous system as a result of reduced oxygen to your brain.	Carbon monoxide is primarily produced from motor vehicle emissions, mostly from poorly operating automobiles.
SULFUR DIOXIDE	Sulfur dioxide (S02) is a colorless, nonflammable gas. This gas has a pungent irritating order.	Sulfur dioxide primarily affects the upper respiratory system. It is usually removed by the nose, mouth and throat.	Combustion sources, mainly power plants burning fossil fuels (coal and oil) which contain sulfur.

III. AIR QUALITY ASSESSMENT

Meteorology

Palm Beach County can be classified as a semi-tropical region. The near permanent position of the subtropical high pressure area dominates our weather. It causes the prevailing easterly surface winds and supplies the warm, moist air necessary to produce the frequent evening rain showers and thunderstorms for which Southern Florida is known. The county's "rainy season" lasts from May to October and coincides with the hurricane season from June 1st to November 30th. This wet weather is primarily due to the east-to-west movement of tropical weather systems from the Caribbean Sea and Atlantic Ocean.

Meteorological parameters play a significant role in understanding the overall air pollution cycle. Wind direction and speed are of primary importance — especially within the first few hundred feet of the surface — in determining pollutant mixing and movement.

High pollution episodes generally occur in the warmer months, from April to October, when the area is under the influence of high pressure systems. This can create conditions of light surface winds and increased air stagnation which reduces the mixing of pollutants in the lower atmosphere. Also, lower than normal rainfall during this period can cause dry, dusty conditions. Combined with intense summer sunlight, these conditions can cause high ozone levels.

Ambient Air Monitoring

One of the most important functions of the Health Department's air program is to conduct ambient air monitoring. The data obtained is used to assess the overall air quality in Palm Beach County, and to determine whether this area is in compliance with federal and state ambient air quality standards. Ambient air monitoring data is also used to evaluate the effectiveness of control strategies and the permitting program.

Air monitoring is conducted throughout the county as indicated by Figure 3.1. Table 3.2 identifies which pollutants are monitored at each site. Most of these monitoring sites are designated as either National Air Monitoring Sites (NAMS) or State & Local Air Monitoring Sites (SLAMS). The monitoring is performed by highly trained and specialized staff utilizing state-of-the-art equipment. For the gaseous pollutants, sensitive instruments are used to detect concentrations in the sub parts per million range. These instruments run continuously except for servicing or maintenance. The data collected from these instruments are routinely telecommunicated via modem to the central data acquisition computer located in West Palm Beach. After the air monitoring data has been reviewed and validated, it is submitted electronically to the Florida Department of Environmental Protection which then forwards it to the U.S. Environmental Protection Agency to be included in the National Data Base.

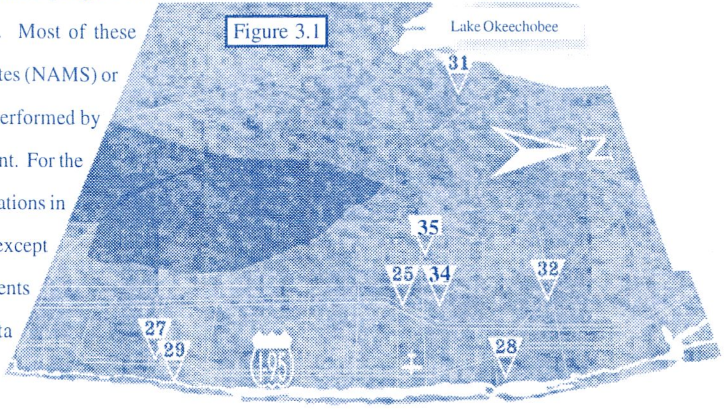


Figure 3.1

Ambient Air Monitoring Sites

35-Royal Palm Beach
25-West Plam Beach
29-Delray Beach
27- Delray Beach
28 -Riviera Beach
34-West Palm Beach
31-Belle Glade
32-West Palm Beach

Table 3.2 1999 Ambient Air Monitoring Network Description

Pollutant	Monitor Location	NAAQS Compliance Status	Comment
Particulate Matter (PM_{10})	Sites 27 & 31	Meet all standards	PM_{10} concentrations are elevated under dry windy weather conditions.
Ozone (O_3)	Sites 35 & 29	Meet all standards	Pollutant of most concern. Highest O_3 concentrations occur in the afternoon under hot . stagnant weather conditions during the spring and summer months.
Nitrogen Dioxide (NO_2)	Sites 25	Meet all standards	Not a problem pollutant except it is involved in the reactions that form ozone.
Lead (Pb)	Site 32	Meet all standards	Single site located downwind of a municipal waste combustor. No Lead detected.
Carbon Monoxide (CO)	Sites 25 & 34	Meet all standards	Highest concentrations recorded on cold winter mornings coinciding with peak traffic.
Sulfur Dioxide (SO_2)	Site 28	Meet all standards	Monitoring located downwind of largest single source of SO_2. Not a problem Pollutant.
Fine Particulate Matter (PM2.5)	Site 27,35	Meet all standards	Elevated during the day and stagnant weather conditions.

All ambient air monitoring is conducted in strict accordance with federal and state quality control limits and procedures. It is the responsibility of the Health Department's Quality Assurance Section to ensure that these requirements are being met.

In 1997, EPA adopted a new ozone standard based on an eight-hour average (see new developments). The new standard is set at 0.08 PPM, and compliance is determined by comparing the standard with the three-year average of the fourth highest annual value obtained from each monitoring site. Tables 3.3a and 3.3b provide a compliance summary for the eight-hour and one hour ozone standards.

Table 3.3a
Fourth Highest 8 Hour Ozone Level

Monitor Location	1997	1998	1999	3 Yr Avg.
Delray Beach	0.068	0.081	0.079	0.076
Royal Palm Beach	0.060	0.074	0.053	0.062

a.Violation occurs when ozone level is 0.085 PPM or greater.

Table 3.3b
Maximum One Hour Ozone Level

Monitor Location	1997	1998	1999	4th Highest Level[b]
Delray Beach	0.094	0.108	0.108	0.104
Royal Palm Beach	0.087	0.094	0.066	0.087

b. For the 3 year period. Violation occurs when ozone level is 0.125 PPM or greater.

EPA also revised standards for particulate matter in 1997 (see new developments). New standards were added for fine particulate matter (PM2.5), which is made up of particles smaller than 2.5 micrometers in diameter. In order to monitor for PM2.5, new sophisticated equipment had to be acquired. In 1999, two PM 2.5 sites were set up (Sites No. 27 & 35). A third PM2.5 site is planned for Belle Glade in 2000. Based on the preliminary data, it appears the County will be in compliance with the PM2.5 standards as well.

The PBCHD also prepares an annual Air Monitoring Technical Report which provides more detailed information. Copies of the report can be obtained by contacting the Health Department's Air Pollution Control Program at (561) 355-3136.

Air Quality Index

The Air Quality Index (AQI) is a uniform method of reporting daily air pollution concentrations and the associated health effects. The index is derived from the highest daily value of the five major pollutants monitored by the Health Department: particulate matter, ozone, sulfur dioxide, nitrogen dioxide and carbon monoxide. In Palm Beach County, particulate matter and ozone have historically been the two predominant pollutants.

The AQI is based on the National Standard Scale spanning from 0-500 with a corresponding descriptive range. In 1999, EPA revised the AQI average and added a new range, "Unhealthy for Sensitive Groups".

1 - 50 -------------------------------------- Good
51 - 100 ------------------------------- Moderate
101 - 150 - Unhealthy for Sensitive Groups
151 - 200 ------------------------------ Unhealthy
201 - 299 -------------------- Very Unhealthy
300 - 500 ---------------------------- Hazardous

Air quality in Palm Beach County was in the GOOD range 91% of the time and in the MODERATE range less than 9%. MODERATE air quality episodes of particulate matter may occur throughout the year, usually the result of heavy construction activity and dry weather. Ozone levels approaching the MODERATE range usually occur during the afternoon hours in Spring, Summer, and Fall. Stagnant weather conditions may also contribute to MODERATE level episodes. Figure 3.4 shows the monthly maximum Air Quality Index for Palm Beach County in 1999. Figure 3.5 shows the number of GOOD, MODERATE and UNHEALTHY days for the last ten years. There was one day, in September 1999, where the AQI was in the "unhealthy for sensitive groups" range.

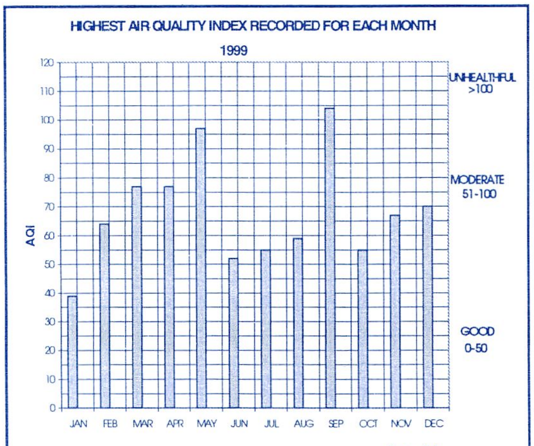


Figure 3.4

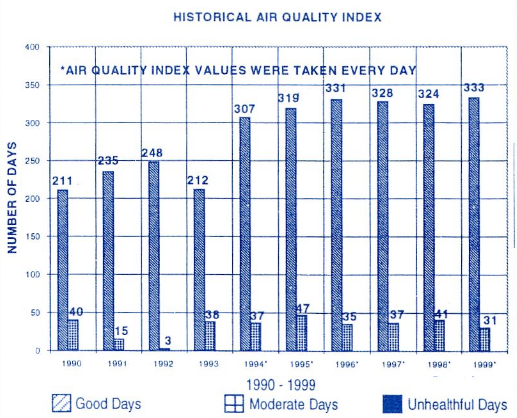


Figure 3.5

The air program staff produces a recorded message for the morning and afternoon AQI on Monday through Friday, and an afternoon AQI on weekends and holidays.

For the latest update of the Air Quality Index, call (561) 355-3962.

Pollen and Mold Spore Count

The Palm Beach County Health Department also provides a pollen and mold spore count. The pollen count is given a numerical value based on the amount and type of pollen collected in a 24-hour period. Data is reported in "grains of pollen or mold spores per cubic meter of sampled air." The pollen count is then compared to the following scale developed by the Aerobiology Committee of the American Academy of Allergy and Immunology:

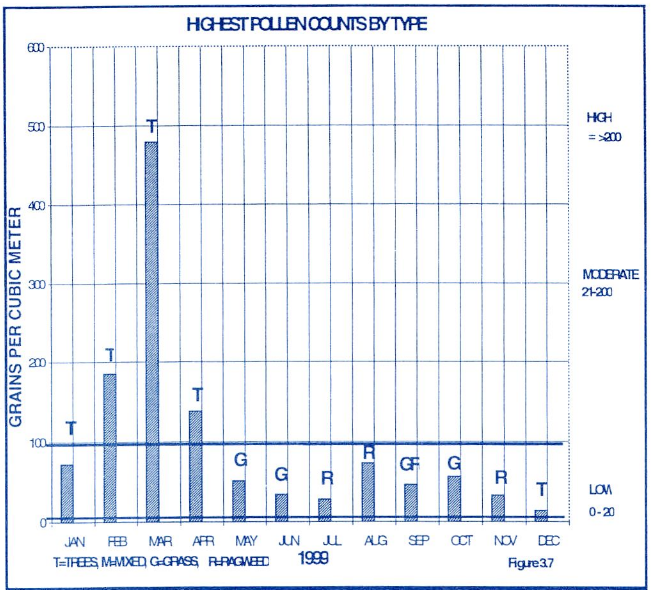
0 - 20 ---------------------------- Low Count
21 - 200 ------------------- Moderate Count
Over 200 ---------------------- High Count

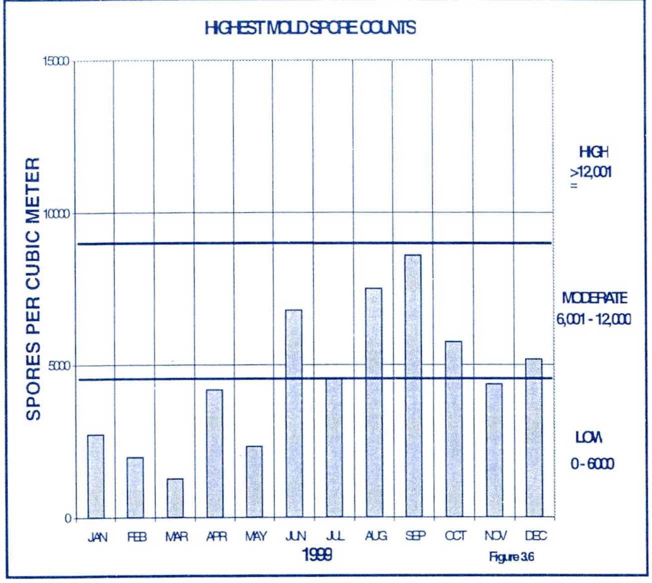
A numerical scale for mold spores was established by the Health Department based on several years of data:

0 - 6,000 --------------------- Low Count
6001 - 12,000 ---------- Moderate Count
Over 12,000 ----------------- High Count

Figures 3.6 and 3.7 provide information on the maximum monthly pollen and mold spore counts for the year. The predominant contributors to the pollen count are grass and weed pollen (May to October) and tree pollen (December to April). The mold spore count is affected by rainfall, generally increasing immediately after a storm and decreasing during dry periods. Palm Beach County receives the greatest amount of rainfall from May through October.

The PBCHD updates the Air Quality Index and the Pollen/Mold Spore Count daily. For the latest update, call (561) 355-3962.



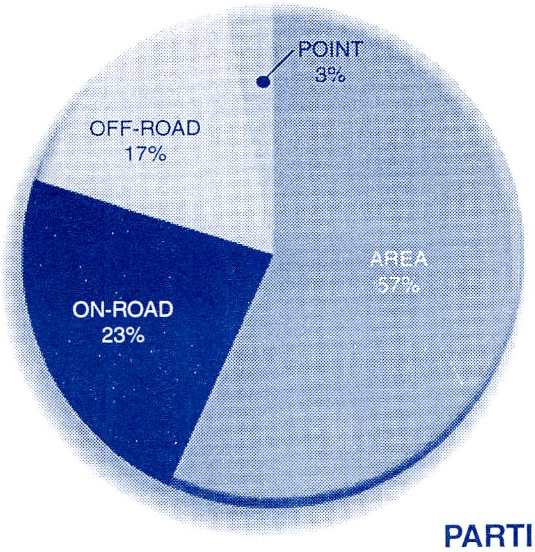


Traffic congestion, especially during the early morning and late afternoon peak rush hours, can cause elevated levels of air pollution.

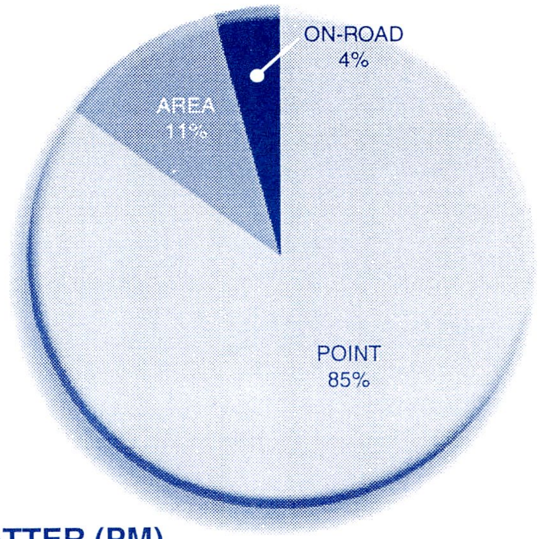
IV. SOURCES OF AIR POLLUTION

Air pollution is primarily caused by man's industrial and transportation activities. It is the undesired by-product of the technological advancement of our modern society. On the other hand, this modern society has also developed efficient methods to prevent and control atmospheric emissions of air pollutants. Emission contributions (depicted on the following page) can be classified by three main categories of air pollution: point sources, area sources, and mobile sources (on-road and off road).

VOLITILE ORGANIC COMPOUNDS (VOC)



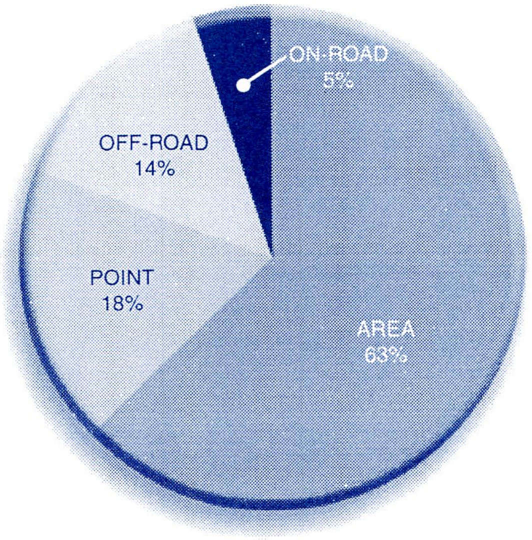
SULFUR OXIDES (SOx)



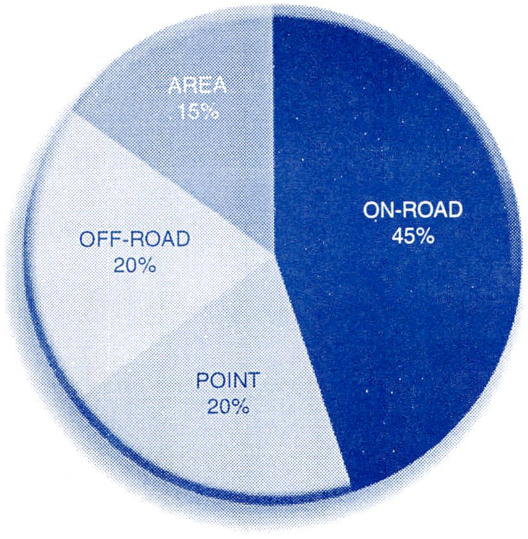
Sources of Air Pollution

- ░ Off-Road Source Lawn & Garden, Farm Equipment,Construction
- ▒ Point Source Factories, etc.
- ▓ Area Source Small Dry Cleaners, etc.
- █ On-Road Source Cars, Trucks, etc.

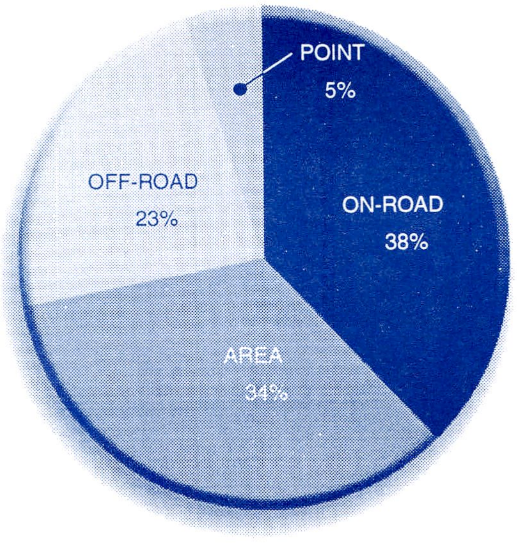
PARTICULATE MATTER (PM)



NITROGEN OXIDES (NOx)

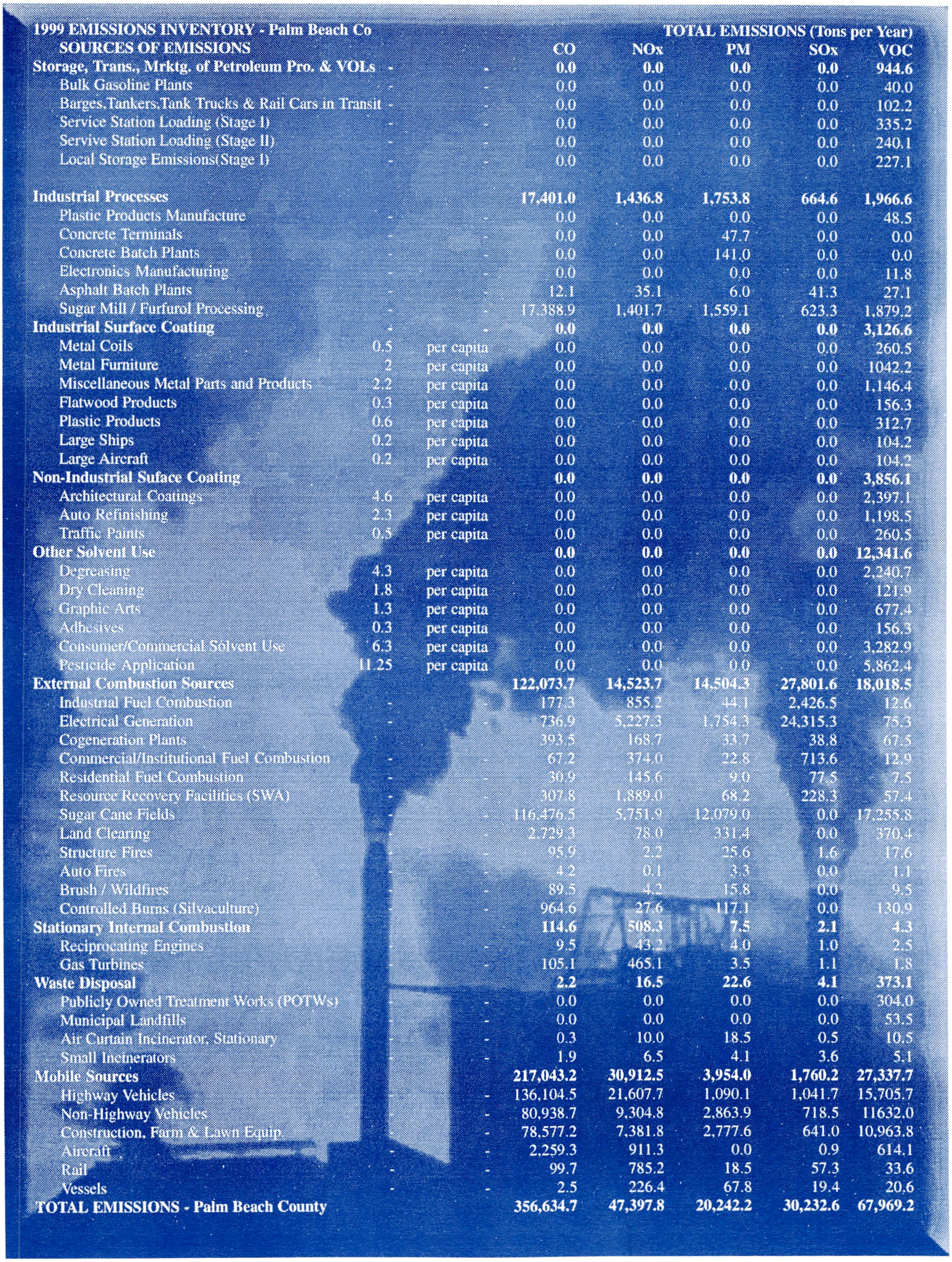


CARBON MONOXIDE (CO)



Emission Inventory

The emission inventory is a compilation of all pollutants in the county from the various sources of air pollution. It can be used as a very effective tool in designing and developing appropriate Air Pollution Control Strategies for a specific geographic area.



1999 EMISSIONS INVENTORY - Palm Beach Co			**TOTAL EMISSIONS (Tons per Year)**				
SOURCES OF EMISSIONS			**CO**	**NOx**	**PM**	**SOx**	**VOC**
Storage, Trans., Mrktg. of Petroleum Pro. & VOLs	-	-	**0.0**	**0.0**	**0.0**	**0.0**	**944.6**
Bulk Gasoline Plants	-	-	0.0	0.0	0.0	0.0	40.0
Barges,Tankers,Tank Trucks & Rail Cars in Transit	-	-	0.0	0.0	0.0	0.0	102.2
Service Station Loading (Stage I)	-	-	0.0	0.0	0.0	0.0	335.2
Servive Station Loading (Stage II)	-	-	0.0	0.0	0.0	0.0	240.1
Local Storage Emissions(Stage I)	-	-	0.0	0.0	0.0	0.0	227.1
Industrial Processes			**17,401.0**	**1,436.8**	**1,753.8**	**664.6**	**1,966.6**
Plastic Products Manufacture	-	-	0.0	0.0	0.0	0.0	48.5
Concrete Terminals	-	-	0.0	0.0	47.7	0.0	0.0
Concrete Batch Plants	-	-	0.0	0.0	141.0	0.0	0.0
Electronics Manufacturing	-	-	0.0	0.0	0.0	0.0	11.8
Asphalt Batch Plants	-	-	12.1	35.1	6.0	41.3	27.1
Sugar Mill / Furfurol Processing	-	-	17,388.9	1,401.7	1,559.1	623.3	1,879.2
Industrial Surface Coating	-	-	**0.0**	**0.0**	**0.0**	**0.0**	**3,126.6**
Metal Coils	0.5	per capita	0.0	0.0	0.0	0.0	260.5
Metal Furniture	2	per capita	0.0	0.0	0.0	0.0	1042.2
Miscellaneous Metal Parts and Products	2.2	per capita	0.0	0.0	0.0	0.0	1,146.4
Flatwood Products	0.3	per capita	0.0	0.0	0.0	0.0	156.3
Plastic Products	0.6	per capita	0.0	0.0	0.0	0.0	312.7
Large Ships	0.2	per capita	0.0	0.0	0.0	0.0	104.2
Large Aircraft	0.2	per capita	0.0	0.0	0.0	0.0	104.2
Non-Industrial Suface Coating			**0.0**	**0.0**	**0.0**	**0.0**	**3,856.1**
Architectural Coatings	4.6	per capita	0.0	0.0	0.0	0.0	2,397.1
Auto Refinishing	2.3	per capita	0.0	0.0	0.0	0.0	1,198.5
Traffic Paints	0.5	per capita	0.0	0.0	0.0	0.0	260.5
Other Solvent Use			**0.0**	**0.0**	**0.0**	**0.0**	**12,341.6**
Degreasing	4.3	per capita	0.0	0.0	0.0	0.0	2,240.7
Dry Cleaning	1.8	per capita	0.0	0.0	0.0	0.0	121.9
Graphic Arts	1.3	per capita	0.0	0.0	0.0	0.0	677.4
Adhesives	0.3	per capita	0.0	0.0	0.0	0.0	156.3
Consumer/Commercial Solvent Use	6.3	per capita	0.0	0.0	0.0	0.0	3,282.9
Pesticide Application	11.25	per capita	0.0	0.0	0.0	0.0	5,862.4
External Combustion Sources			**122,073.7**	**14,523.7**	**14,504.3**	**27,801.6**	**18,018.5**
Industrial Fuel Combustion	-	-	177.3	855.2	44.1	2,426.5	12.6
Electrical Generation	-	-	736.9	5,227.3	1,754.3	24,315.3	75.3
Cogeneration Plants	-	-	393.5	168.7	33.7	38.8	67.5
Commercial/Institutional Fuel Combustion	-	-	67.2	374.0	22.8	713.6	12.9
Residential Fuel Combustion	-	-	30.9	145.6	9.0	77.5	7.5
Resource Recovery Facilities (SWA)	-	-	307.8	1,889.0	68.2	228.3	57.4
Sugar Cane Fields	-	-	116,476.5	5,751.9	12,079.0	0.0	17,255.8
Land Clearing	-	-	2,729.3	78.0	331.4	0.0	370.4
Structure Fires	-	-	95.9	2.2	25.6	1.6	17.6
Auto Fires	-	-	4.2	0.1	3.3	0.0	1.1
Brush / Wildfires	-	-	89.5	4.2	15.8	0.0	9.5
Controlled Burns (Silvaculture)	-	-	964.6	27.6	117.1	0.0	130.9
Stationary Internal Combustion			**114.6**	**508.3**	**7.5**	**2.1**	**4.3**
Reciprocating Engines	-	-	9.5	43.2	4.0	1.0	2.5
Gas Turbines	-	-	105.1	465.1	3.5	1.1	1.8
Waste Disposal			**2.2**	**16.5**	**22.6**	**4.1**	**373.1**
Publicly Owned Treatment Works (POTWs)	-	-	0.0	0.0	0.0	0.0	304.0
Municipal Landfills	-	-	0.0	0.0	0.0	0.0	53.5
Air Curtain Incinerator, Stationary	-	-	0.3	10.0	18.5	0.5	10.5
Small Incinerators	-	-	1.9	6.5	4.1	3.6	5.1
Mobile Sources			**217,043.2**	**30,912.5**	**3,954.0**	**1,760.2**	**27,337.7**
Highway Vehicles	-	-	136,104.5	21,607.7	1,090.1	1,041.7	15,705.7
Non-Highway Vehicles	-	-	80,938.7	9,304.8	2,863.9	718.5	11632.0
Construction, Farm & Lawn Equip.	-	-	78,577.2	7,381.8	2,777.6	641.0	10,963.8
Aircraft	-	-	2,259.3	911.3	0.0	0.9	614.1
Rail	-	-	99.7	785.2	18.5	57.3	33.6
Vessels	-	-	2.5	226.4	67.8	19.4	20.6
TOTAL EMISSIONS - Palm Beach County			**356,634.7**	**47,397.8**	**20,242.2**	**30,232.6**	**67,969.2**

V. AIR POLLUTION CONTROL ACTIVITIES

The Palm Beach County Health Department is responsible for a number of air pollution control activities, including permit review, stationary source inspections, enforcement, the mobile source program, asbestos tracking, indoor air quality, air assessment complaint investigations, and open burn approvals. Each of these programs is described below.

Table 5.1 1999 ACTIVITIES SUMMARY

AIR POLLUTION PERMIT REVIEW	**40**
Construction Permit	14
Operation Permit	8
Federally Enforced State Operating Permit (FESOP)	0
Major Source Permits (Title V)	6
Exemptions	0
General Permits	12
Fees	$12,050.00
STATIONARY SOURCE INSPECTIONS	**285**
Major	40
Synthetic Minor	28
Minor	64
Title V General Permits	133
General Permits	20
ENFORCEMENT	**31**
Notice of Violation	5
Notice to Correct	6
Environmental Control Hearing Board Cases	5
Warning Notices	9
Consent Orders	6
Penalties Collected	$61,480.00
ASBESTOS	**1086**
Notifications	424
Demolitions	252
Inspections	410
Outreach	19

MOBILE SOURCE PROGRAM	**167**
Stage I Vapor Recovery Delivery Inspection	3
Stage II Plan Review	14
Stage I & II Certification/Inspection	93
Presentations	7
Investigations	14
Review of Development of Regional Impact (DRI)	9
Information Requests	27
COMPLAINTS	**596**
Odor	172
Smoke/Open Burning	29
Smoke/Other	27
Noise	17
Dust	84
Paint Overspray/Chemical Fume	18
Pesticide	10
Asbestos	10
Sugarcane Burning	6
Indoor Air Section	203
Other	17
Air Toxics	3
OPEN BURN APPROVALS FOR 1999	**158**
Commercial	21
Residential	137

Randy Miller, Environmental Specialist, collects dust samples in response to complaints from the public.

Health Department Staff, Paul Kalamaras, determines compliance of gasoline vapor recovery equipment at a local gas station.

Compliance Monitoring

All permitted and licensed air pollution sources are inspected annually to assure compliance with regulations and permit conditions. Inspections of major sources are very complex requiring a well-trained staff. These inspections often involve thorough record reviews, and the witnessing of tests to verify compliance with emission limiting standards. Many of the larger combustion sources have continuous emission monitoring equipment that requires periodic testing to assure accuracy.

Enforcement

A key element to assure compliance is an effective enforcement program. The Health Department utilizes several enforcement mechanisms to address facilities out of compliance with permit conditions or air pollution regulations. Violations can be brought before the Palm Beach County Environmental Control Hearing Board. The Board has the ability to order corrective actions and assess monetary penalties. All monies collected for air pollution violations are deposited in the Palm Beach County Pollution Recovery Trust Fund.

Mobile Source Program

The Mobile Source Program (MSP) is responsible for implementing regulations designed to control emissions from cars, trains, planes, and boats — more commonly referred to as mobile sources. This is accomplished with regular inspections and aggressive enforcement by highly trained personnel. Gasoline service stations, automotive service and repair facilities, and gasoline delivery vessels are a few of the local sources subject to compliance activities. A comprehensive "Emissions Inventory" is compiled annually for mobile sources. Transportation and comprehensive growth management planning is another priority area for the MSP. Single occupancy vehicles are discouraged by: ride sharing, high occupancy vehicle (HOV) lanes, staggered/flexible work hours, and construction of bike lanes. This helps by reducing the amount of vehicles on the road, thereby lowering the amount of car emissions.

Permitting & Licensing

Many sources of air pollution are required to obtain a state air pollution permit prior to construction, operation, and modification of equipment or operations that impact air pollution emissions. The permit establishes the conditions under which a facility must operate, including limits on pollutant emission rates and the test methods to demonstrate compliance. The Health Department has been delegated by the DEP the authority to issue or deny air pollution permits to most sources located in Palm Beach County. However, there are certain source categories that DEP has retained the permitting authority because of prohibitions under Florida Law, concern for statewide consistency, or conflict of interest.

Asbestos

Asbestos fiber-release exposure has been associated with the development of diseases such as asbestosis, lung cancer, and mesothelioma, a rare and usually fatal disease. The health risks associated with asbestos have resulted in Federal Regulations, some of which are contained in the National Emission Standards for Hazardous Air Pollutants (NESHAP). The PBCHD routinely inspects public and commercial buildings to verify that there will be no threat of asbestos fiber release to the air during demolition and renovation activities.

Open Burning

In Palm Beach County, the open burning of vegetative debris is allowed for land clearing purposes. This activity is a one-time operation associated with clearing a property for the construction of a commercial business or private residence. To minimize the air pollution generated by this activity, the Health Department inspects all commercial and residential land clearing open burning projects. Any project creating a nuisance or health threat will be suspended and enforcement action pursued. In 1996, the Board of County Commissioners enacted new open burning requirements for Palm Beach County. The purpose of these measurements is to ensure that open burning does not have a negative impact on human health and welfare and the surrounding environment.

Open burning of trash is prohibited and subject to enforcement action by the Health Department.

Indoor Air Quality

People generally spend the majority of their time indoors. Pollutants can become trapped indoors and build up to levels greater than those outdoors. Sources of indoor air pollution may come from inside buildings or from the infiltration of polluted outdoor air. The Division of Environmental Health and Engineering conducts surveys and investigations of health related complaints in occupational and residential buildings on request. Advice and recommendations are made for the improvement of indoor air quality. For more information on Indoor Air Quality, please contact the Health Department at (561) 355-3070.

Outreach

In 1999, the PBCHD Air Section continued it's strong outreach program in the community by working closely with organizations such as the American Lung Association of Southeast Florida, the Southeast Chapter of the Air and Waste Management Association and the Palm Beach County School District. The Health Department successfully delieved public health information during Clean Air Month, Earth Day 1999 and National Public Health Week.

VI. NEW DEVELOPMENTS

Ambient Air Standards Update

In July of 1997, the EPA revised the National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter. The ozone standard had been set at 0.12 PPM, based on an hourly average. The new ozone standard was tightened to 0.08 PPM, but based on an eight-hour average. The ozone standard was revised to provide better protection because scientific evidence indicates that health effects occur at lower levels with longer exposure times. EPA also revised the method of determining whether an area is in compliance with the ozone standard. An area is out of compliance if the average of the fourth highest annual ozone value over a three consecutive year period exceeds the .080 standard. As with the one hour standard, attainment demonstration will be based on monitoring data from the Southeast Florida airshed, which includes Dade, Broward and Palm Beach County counties. When EPA makes the initial attainment designations using the 1997-1999 data, the Florida Southeast airshed will be in compliance with the new eight-hour ozone standard.

The NAAQS revisions also added a new one-hour and annual standard for fine particulate matter. Health studies indicate that fine particles (with diameters of 2.5 micro meters or less) are more of a health concern as they have a greater ability to penetrate deeply into the lungs. Sources of fine particulate matter (PM2.5) are generally associated with combustion processes such as power plants, motor vehicles, and open burning. PM2.5 can also be formed in the atmosphere from gaseous pollutants emitted from combustion sources that undergo chemical transformation. After the PM2.5 standards were adopted, a monitoring network had to be established employing new, highly sophisticated field samplers. In 1999, the Health Department completed the network, consisting of two sites. Based on the data collected, it appears that Palm Beach County will be in compliance with the PM2.5 standards as well. However, levels approach the PM2.5 standard much more closely compared to the PM10 data and respective standards.

The revised standards were adopted under much controversy. There was a major concern that implementing the new standards would prove to be too expensive and adversely impact economic development. Several industry groups challenged the standards in Federal Court. In May of 1999, the U.S Court of Appeals for the District of Columbia remanded the revised ozone and new PM2.5 NAAQS back to EPA for further consideration. EPA appealed the decision but the Court denied EPA a rehearing. EPA has since filed a petition seeking Supreme Court review of the decision. The Court action has essentially let the new standards stand but made them unenforceable. Consequently, EPA has proposed to reinstate the one-hour .120 ozone standard to ensure public health protection. The final Court action could greatly effect the ability of EPA to set NAAQS for public health protection in the future.

Real Signs of Pollution Prevention (P2) in Palm Beach County

Pollution Prevention (P2) is no longer just a catchy "buzz word" or conceptual idea in Palm Beach County (PBC). P2 is quickly becoming a reality, and changing the lifestyles of many PBC residents, businesses and visitors. The P2 Coalition of Palm Beach County (facilitated by PBC Health Department Staff) continues to promote and foster environmentally friendly concepts in a non-regulatory manner to area businesses, industries, schools, governments, and the general public. In 1999, the Coalition's successes included:

- Conducting technical seminars for several local small businesses;
- Expanding the P2 web page, which is available through Florida Atlantic University;
- Promoting poster and essay contests, science fairs, and workshops for local school system students and teachers;
- Increasing community awareness through the local media and cable TV network;
- Organizing special events during National P2 Week and Earth Day 1999; and
- Recruiting and adding new members to the Coalition.

While the environmental benefits of P2 may be difficult to quantify, it became more evident in 1999 that attitudes on the way we "conduct daily business" appear to be changing for the better. At a workshop on "Non-Point Source Pollution Prevention", over 75 environmental resource manuals were distributed free of charge to PBC high school teachers. Feedback from teachers was very positive. The Coalition set up their P2 display board and exhibit at the annual jamboree for the Gulfstream Council of the Boy Scouts of America. Florida Power and Light's Electric Vehicle was part of the display, along with hands-on demonstration of many other energy saving appliances and devices. During National P2 Week in September, a poster contest was co-sponsored by the Coalition and First Union Bank for PBC middle and high school students. An awards ceremony was held in conjunction with the Solid Waste Authority's (SWA) "America Recycles Day" on November 6, 1999. The world famous entertainer "Environmental Elvis" even performed at the ceremony.

Several Proud PBC Middle School Students Received Their Awards For the Coalition's P2 Environmental Poster Contest, Hosted by the PBC Solid Waste Authority During Their "America Recycles Day".

During a Thermometer Exchange Program at the Palm Beach Mall in September, co-sponsored by the PBC SWA, over 175 dangerous mercury thermometers were turned in by local residents for much safer digital thermometers. As a result of a Technical Workshop for the Port of Palm Beach in August, several tenants have begun to implement P2 strategies as part of their daily operations. The SWA also showcased several existing P2 programs at Pratt Whitney, Motorola, and several local marinas through their popular Cable TV Program "Waste Matters." Industry and local businesses have also shown an interest in the Coalition's P2 web page, which received approximately 1800 hits in the first two months of operation.

P2 Coalition Member Bob Madden Distributes a Digital Thermometer (Mercury Free) to a Patron at the Palm Beach Mall During National Pollution Prevention Week

If 1999 is any indication, the future of Pollution Prevention in PBC looks very promising. Feel free to visit the P2 Coalition's web page at http://www.CES.FAU.EDU/~Pollute.

Title V Operating Permits

During 1999, the Palm Beach County Health Department issued the last of its initial Title V Operating Permits. In doing so, the Health Department received recognition as the first organization in the state to complete its assigned permits from the Florida Department of Environmental Protection (FDEP). In September 1999, the FDEP incorporated the Federal Emission Guidelines for Hospital/Medical/Infection Waste Incinerators into the Florida Administrative Code. Consquently, the FDEP will eventually repeal its existing Biological Waste Incineration Facility (BWIF) rule. Review of the Emission Guidelines noted that the current Palm Beach County Biohazardous Waste Incineration Facility Ordinance provides equal if not greater protection to the public.

VII. ABBREVIATIONS

AFV's	Alternative Fueled Vehicles
CAAA	Clean Air Act Amendments (of 1990, Federal law)
CFC's	Chloroflurocarbons
CNG	Compressed Natural Gas
CO	Carbon Monoxide
DEP	Department of Environmental Protection
DRI	Development of Regional Impact
EI	Emissions Inventory
EPA	Environmental Protection Agency
GACT	Generally Available Control Technology
HAP's	Hazardous Air Pollutants
MACT	Maximum Achievable Control Technology
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAMS	National Ambient Air Monitoring Stations
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO	Nitric Oxide
NOX	Nitrogen Oxides
NO2	Nitrogen Dioxide
O3	Ozone
P2	Pollution Prevention
PBCHD	Palm Beach County Health Department
PCE	Perchloroethylene
PM	Particulate Matter
PIP	Public Information Program
PPM	Parts Per Million, by Volume
SLAMS	State and Local Air Monitoring Stations
SOA	Specific Operating Agreement
SO2	Sulfur Dioxide
T21	Transportation Efficiency Act for the 21st Century
TCCR	Tri County Commuter Rail
TCM	Transportation Control Measures
TCRPC	Treasure Coast Regional Planning Council
TOD	Transit Oriented Design
µg/m3	Micrograms Per Cubic Meter
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds

VIII. CREDITS

This Progress Report is printed annually by the Air Pollution Control Section of the Palm Beach County Health Department. It is designed to provide information to local citizens and government officials, about the local air pollution control activities and the air quality in Palm Beach County.

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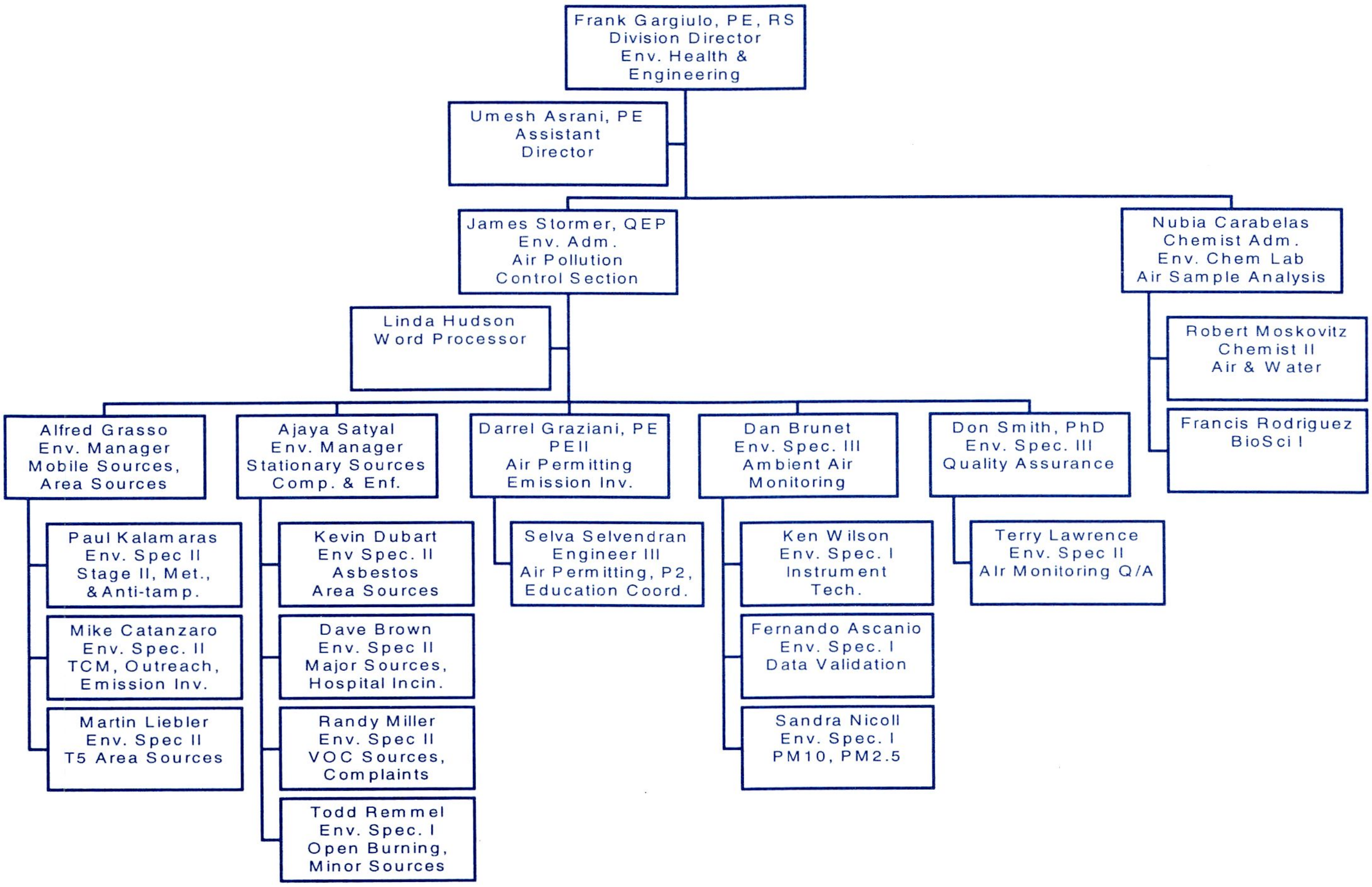
Contact Michael Cantanzaro @ (561) 355-3070 ext. 1172.

I would like to thank everyone who helped with this year's Annual Report.

For additional and updated information, please check out the Palm Beach County Health Departments web site @

http://www.doh.state.fl.us/chdpalmbeach

Air Pollution Control Program
Division of Environmental Health & Engineering
Palm Beach County Health Department



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